UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR - 8 2015

OFFICE OF
ENFORCEMENT AND
COMPLIANCE ASSURANCE

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Re: Section 114 Letter Requiring Emissions Testing at the
ExxonMobil Chemical Company's Plastics Plant in Mont Belvieu, Texas

Mr. Robert Catudal
ExxonMobil Chemical Company
13501 Katy Freeway, W3-102
Houston, TX 77079

Dear Mr. Catudal:

The U.S. Environmental Protection Agency (EPA) is currently investigating flare efficiency at chemical and plastics plants. EPA has determined that testing using passive Fourier transform infrared (PFTIR) technology to measure combustion efficiency of the Low Density Polyethylene (LDPE) and High Density Polyethylene (HDPE) flares at the ExxonMobil Chemical Company's (EMCC) Plastics Plant in Mont Belvieu, Texas, is warranted. As such, please provide the information requested and conduct the tests in accordance with the procedures and deadlines identified in the Enclosures.

Under 40 C.F.R. Part 2, Subpart B, you may assert a claim of business confidentiality for any portion of the submitted information. You must specify the page, paragraph, and sentence when identifying the information subject to your claim. Enclosure III specifies the assertion and substantiation requirements for business confidentiality claims. EMCC must submit all requested information under an authorized signature with the following certification:

> I certify under penalty of law that I have examined and am familiar with the information in the enclosed documents, including all attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are, to the best of my knowledge and belief, true and complete. I am aware that there are significant penalties for knowingly submitting false statements and information, including the possibility of fines or imprisonment pursuant to section 113(c)(2) of the Act, and 18 U.S.C. §§ 1001 and 1341.

We may use any information submitted in response to this request in an administrative, civil, or criminal action. This request is not subject to the Paperwork Reduction Act, 44 U.S.C. §§ 3501 et seq., because it seeks collection of information from specific individuals or entities as part of an administrative action or investigation. Failure to comply fully with this request for information may subject EMCC to an enforcement action under section 113 of the Act, 42 U.S.C. § 7413.

You should submit your written response to each request contained herein to:

Patrick W. Foley
USEPA - Air Enforcement Division
MC 2242-A, Room 2119C
1200 Pennsylvania Ave., NW
Washington, DC 20002

Please contact either Patrick W. Foley at (202) 564-7978, or Robert Parrish at (202) 564-6946, if you have any questions about this request for information. We thank you in advance for your cooperation.

Sincerely,

Phillip A. Brooks, Director
Air Enforcement Division

Enclosures

cc: David T. Buente, Sidley Austin, LLP
Ramiro Garcia, TCEQ
Margaret Osborne, EPA Region 6
Steven Shermer, US DOJ

Enclosure I
EPA Clean Air Act Section 114 Request to ExxonMobil Chemical Company

Contents of Test Report for PFTIR testing of the Low Density Polyethylene and High Density Polyethylene flares at ExxonMobil Chemical Company's Plastics Plant in Mont Belvieu, Texas

The Test Report shall be organized in the following manner:

Introduction

Background information pertinent to the PFTIR test should be presented in this section. This information shall include, but shall not be limited to, the following:

a: Name and address of the manufacturer of the flares tested;

b: Name and address of the testing organization;

c: Test dates, names of persons present during test, and location of test; and

d: A brief discussion of the operating principles of the flares tested, including maximum capacities and operating parameters of the flares.

Summary

A summary of test findings pertinent to the evaluation of the flares' combustion efficiency should be presented in this section. This information shall include, but not be limited to, the following:

a: A summary of combustion efficiencies observed during all Test Series; and

b: The operating level of the flares and any other relevant process, fuel, or operating parameters monitored during the test.

Procedures

A description of the procedures used while conducting the PFTIR testing should be presented in this section. The information shall include, but shall not be limited to, the following:

a: A schematic drawing of the devices and measurement equipment used, with each component designated and explained in a legend; and

b: A description of the principle of operation of and the method used to operate the measurement equipment.

Analytical Technique

A description of all analytical techniques used to determine the combustion efficiency of the Low Density Polyethylene and High Density Polyethylene flares should be presented in this section.

Data and Calculations

All actual data collected and the actual calculations should be presented in this section. This information shall include, but not be limited to the following:

a: All field and other data collected, including legible copies of field data sheets (raw data) and any transcribed or computer data sheets that might be relevant;

b: All calculations used in determining combustion efficiencies, or other factors relevant to the test results, etc.; and

c: Laboratory data, including blanks, calibration data, quality assurance samples, and results of the analyses.

Chain of Custody

A listing of the chain of custody of the test equipment used to perform the PFITR testing and any grab sampling should be presented in this section.

Appendix

This section shall include, as a minimum, calibration work sheets for all testing equipment.

Verification of Testing and Operating Parameters

Monitoring and sampling data for all flare operating parameters, reports, log sheets, and strip chart recordings of all relevant testing parameters must be included.

All data sheets, strip charts, and print-outs must be sufficiently annotated or explained to make their intention and information clear and understandable.

Enclosure II
EPA Clean Air Act Section 114 Request to ExxonMobil Chemical Company

The following request for information applies to the use of passive Fourier transform infrared (Passive FTIR or PFTIR) spectroscopy measurement technology to measure emissions of particular compounds and the combustion efficiency (CE) at the Low Density Polyethylene (LDPE) and High Density Polyethylene (HDPE) flares at ExxonMobil Chemical Company's (EMCC's) Plastics Plant in Mont Belvieu, Texas.

Flare Test

Passive FTIR will be used to measure the combustion efficiency at the Low Density Polyethylene and High Density Polyethylene flares during each of the following test conditions.

Test Conditions

Overview

Starting from the baseline vent gas flow and composition for the flare, target vent gas compositions will be established and steam assist rates varied at each composition. The test conditions are provided in the following Text Matrix. During each test point, the PFTIR will remotely analyze the resulting combustion gases in the flare plume to determine CE. The result will be a defined flare operating envelope over a variety of conditions. Testing will not target CE's lower than 80%.

For any Test Series, if a CE of 98% or higher is observed during Test Point 6 (200 Btu/Scf), EMCC shall conduct additional test points in diminishing increments of 20 Btus/scf (i.e., 180 Btu/scf, 160 Btu/scf, etc.) until a CE below 98% is observed. For any Test Series, if a CE less than 98% is observed before Test Point 6 (e.g., > 200 btus/Scf), additional test points may be completed in smaller increments to better understand the efficiency curve.

Test Descriptions

Each test will be conducted with a different vent gas composition of hydrogen and ethylene. Assist steam will be varied to achieve a range of NHV_{CZ}s. Vent gas rates for the test conditions will be maintained such that the flare is operating at greater than 0.1% and less than 10% of design hydraulic capacity. Test conditions may be changed before or during the test based on learnings from potential pre-test condition simulation or modeling and/or data collected during the actual test.

LDPE Test Series 1 - Ethylene

Vent gas composition will be adjusted to achieve the target concentration of ethylene. Test conditions will simulate typical concentrations of ethylene for the flare. Assist steam rates will be varied to achieve target NHV_{CZ}s. Three replicates, each approximately 20 minutes in duration, will be performed for each test point.

HDPE Test Series 1 to 3 - Hydrogen & Ethylene

Vent gas composition will be adjusted to achieve target concentrations of hydrogen and ethylene.

Test conditions will simulate low and high concentrations of ethylene and hydrogen. Assist steam rates will be varied to achieve target NHV_{CZS}. Three replicates, each approximately 20 minutes in duration, will be performed for each test point.

EMCC may discontinue a run after the collection of at least ten minutes of data that shows a CE of eighty (80) percent or less; however, if ten minutes or more of data has been collected, EMCC may discontinue the test run if three data points show a CE of 80 percent or less. EMCC also may discontinue a run at the point EMCC believes the flare flame has been snuffed. Finally, EMCC may discontinue a run after three minutes of observed opacity using Method 22. Pursuant to Method 22 "[s]moke emissions means a pollutant generated by combustion in a flare and occurring immediately downstream of the flame. Smoke occurring within the flame, but not downstream of the flame, is not considered a smoke emission."

As to the discontinued test runs described in the previous Paragraph, EMCC shall report in the Test Report (described in Enclosure I) the results of such runs as valid runs and base the numeric results on the data collected before the run was terminated. Runs in which the flame is snuffed shall be considered valid runs and shall be reported as zero (0) CE in the Test Report.

EMCC may also discontinue testing based on operational safety concerns. However, if EMCC discontinues testing based on operational safety concerns, EMCC shall immediately notify Robert Parrish by telephone at 202-564-6946, and by e-mail at parrish.robert@epa.gov, respectively, of any testing discontinuance. Within twenty-four hours of the end of the event that caused the operational safety concern, EMCC shall provide EPA in writing a detailed explanation of the conditions that warranted the discontinuance. In the event of a testing discontinuance, EMCC shall make its best efforts to resume testing as soon as is practicable.

EMCC shall make best efforts to maintain all operating parameters identified in the Test Matrix during each Test Series and Test Point.

Test Matrix

LDPE Test Series 1

MBPP LDPE	LDPE Test Series 1			
Fixed Parameters	Vent Gas Flow Vent Gas Composition			
Variable Parameters	Steam Flow			
Predicted VG Flow [klb/h]	18.7			
% Hydraulic Capacity	2.1%			
Vent Gas Composition	Hydrogen [mol%]	Ethylene [mol%]	Estimated Combustion Zone Gas Composition	
	~ 1	10 to 15	Hydrogen [mol%]	Ethylene [mol%]
CZNHV	[Btu/scf]	[Btu/scf]		
Test Point 1	380		0.9	8.9
Test Point 2	350		0.8	8.2
Test Point 3	300		0.7	7.0
Test Point 4	270		0.6	6.3
Test Point 5	250		0.6	5.8
Test Point 6	200		0.5	4.7

Propylene is not present in the vent gas stream.

Note: Total number of test points to be determined based on test results and may vary.

HDPE Test Series 1 to 3

MBPP HDPE	HDPE Test Series 1			
Fixed Parameters	Vent Gas Flow Vent Gas Composition			
Variable Parameters	Steam Flow			
Predicted VG Flow [klb/h]	2.8			
% Hydraulic Capacity	2.1%			
Vent Gas Composition	Hydrogen [mol%]	Ethylene [mol%]	Estimated Combustion Zone Gas Composition	
	5 to 10	10 to 15	Hydrogen [mol%]	Ethylene [mol%]
CZNHV	[Btu/scf]	[Btu/scf]		
Test Point 1	380		4.3	8.7
Test Point 2	350		4.0	8.0
Test Point 3	300		3.4	6.8
Test Point 4	270		3.1	6.2
Test Point 5	250		2.8	5.7
Test Point 6	200		2.3	4.6

Propylene is not present in the vent gas stream.

Note: Total number of test points to be determined based on test results and may vary.

MBPP HDPE	HDPE Test Series 2			
Fixed Parameters	Vent Gas Flow Vent Gas Composition			
Variable Parameters	Steam Flow			
Predicted VG Flow [klb/h]	11.8			
% Hydraulic Capacity	8.7%			
Vent Gas Composition	Hydrogen [mol%]	Ethylene [mol%]	Estimated Combustion Zone Gas Composition	
	< 5	< 5	Hydrogen [mol%]	Ethylene [mol%]
CZNHV	[Btu/scf]	[Btu/scf]		
Test Point 1	380		5.2	5.2
Test Point 2	350		4.8	4.8
Test Point 3	300		4.1	4.1
Test Point 4	270		3.7	3.7
Test Point 5	250		3.4	3.4
Test Point 6	200		2.8	2.8

Propylene is not present in the vent gas stream.

Note: Total number of test points to be determined based on test results and may vary.

MBPP HDPE	HDPE Test Series 3			
Fixed Parameters	Vent Gas Flow Vent Gas Composition			
Variable Parameters	Steam Flow			
Predicted VG Flow [klb/h]	3.7			
% Hydraulic Capacity	2.8%			
Vent Gas Composition	Hydrogen [mol%]	Ethylene [mol%]	Estimated Combustion Zone Gas Composition	
	5 to 10	25 to 30	Hydrogen [mol%]	Ethylene [mol%]
CZNHV	[Btu/scf]	[Btu/scf]		
Test Point 1	380		2.9	14.3
Test Point 2	350		2.6	13.1
Test Point 3	300		2.3	11.3
Test Point 4	270		2.0	10.1
Test Point 5	250		1.9	9.4
Test Point 6	200		1.5	7.5

Propylene is not present in the vent gas stream.

Note: Total number of test points to be determined based on test results and may vary.

Test Procedure

Two PFTIR instruments will be situated at different positions but the same approximate distance from the flare tip to allow for plume monitoring regardless of wind direction. Each instrument will be calibrated at least once each test day.

The two instruments shall be located in positions that maximize the collection of valid data from at least one instrument and to ensure that at least one PFTIR will have a good view of the flare plume at all times.

Both PFTIRs will collect data during a run for simultaneous readings, including when wind conditions allow a cross-sectional view of the flare plume from both PFTIR instruments. Data will be collected from both PFTIRs to allow a determination of method precision.

The duration of each test point will be approximately 20 minutes (excluding time for PFTIR sky backgrounds). The PFTIR is capable of analyzing multiple spectra per minute. Therefore, 20 minutes per test point provides ample time for a stable measurement. Each test point will be replicated three times for a total test time of 60 minutes. The variable parameter steam will be changed between replicates of each test point. It is not planned to vary the fixed parameters vent gas flow and composition between replicates of each test point, such that once the vent gas flow and composition are established for a test series all test points including replicates can be completed.

Each test point will be evaluated for data quality prior to moving to the next test point. The PFTIR contractor will check that at least 15 quality data points have been obtained, that the two PFTIRs are obtaining the similar combustion efficiency results (when both PFTIRs have a cross-sectional view of the plume), and that the variability in the PFTIR data is acceptable.

Once a test point is complete, the process conditions will be adjusted for the next test point and the procedure starts again. Each test run will begin after a stable flow is achieved, the header has been purged with three volumes of gas and a GC analysis has validated vent gas composition.

PFTIR data will be logged into the data acquisition system supplied by the PFTIR contractor. The reported values will constitute an average of several analytical cycles over each test run.

During each test point, both vent gas and steam flow rates will be measured continuously. Determination of molecular weight of the vent gas will be provided by GC analysis.

A Long Term Stability (LTS) test will also be completed once each day under the same flare operating condition. The purpose of this test is to determine the repeatability of PFTIR measurements over an extended period. Also, if possible, a relative accuracy check against a source with a CO2/CO CEMS will be conducted prior to the start of testing.

Aiming

Ideally, the PFTIR will be aimed near the centerline of the flare plume about one flame length away from the flame tip. In an attempt to maintain an optimal view, the PFTIR operator must continually adjust the aiming position of the PFTIR.

Aiming will be adjusted for wind speed to capture a representative section of the flare plume that is not too close to the flare flame and not too cold for the PFTIR to be effective.

Aiming videos will be monitored during the test program to ensure that acceptable aiming is maintained.

To avoid the problem of poor plume alignment, two PFTIRs will be placed at separate locations so at least one PFTIR will have good plume alignment regardless of wind direction.

Data Collection

During the Test Series for the LDPE flare, the operating parameters listed in Table 1 will be measured and reported in the test report described in Enclosure I. During the Test Series for the HDPE flare, the operating parameters listed in Table 2 will be measured and reported in the test report described in Enclosure I. EMCC will provide all of these measurements as one minute averages.

EMCC shall use the following instrumentation to monitor vent gas flow rate, vent gas composition, and to monitor and control steam flow rate:

Vent Gas Flow Rate

The LDPE flare shall use a General Electric (GE) Panametrics ultrasonic gas flowmeter to measure the vent gas flow rate, temperature, and molecular weight.

The HDPE flare shall use a dual path, 45 degree General Electric (GE) Panametrics ultrasonic gas flowmeter. Flare gas stream temperature and pressure will be input to the flow meter for flow rate accuracy compensation.

Vent Gas Composition

Gas Chromatograms (GCs) shall be used to measure the composition of the gas in the LDPE and HDPE flare headers on a wet basis. The GC analyzers provide an analytical data point at least once every 15 minutes.

Steam Flow Rate & Control

Steam flow to the LDPE flare shall be measured by a single orifice flow meter. The pressure and temperature on the steam supply to the LDPE flare shall be assessed by the pressure on the main steam supply header.

Steam flows to the HDPE flare shall be measured by multi-hold orifice type flow meters. These meters are pressure and temperature compensated.

LDPE Flare Parameter	Unit	Frequency	Instrumentation/ID
Vent Gas Mass Flow Rate	lb/hr	Continuous	Flow Meter / ML.73F012D.PV
Vent Gas Volumetric Flow Rate	kscf/min	Continuous	Calculation via flow meter / ML.73F012B.PV
Total Steam Mass Flow Rate	lb/hr	Continuous	Flow Meter / ML.73F019.PV
Total Steam Volumetric Flow Rate	scf/hr	Continuous	Calculation
Minimum Steam Mass Flow Rate	lb/hr	Continuous	Constant flow, via RO = 900 lb/hr, measured via flowmeter ML.73F019.PV
Minimum Steam Volumetric Flow Rate	scf/hr	Continuous	Calculation
Total Pilot Gas Mass Flow Rate	lb/hr	Fixed Value	No meter. Calculation
Total Pilot Gas Volumetric Flow Rate	scf/hr	Fixed value	No meter. Total flow is 225 scf/hr per design (3 x 75 scf/hr)
Flare Gas Pressure	psig	Continuous	Pressure Instrument / ML.73P018.PV
Flare Gas Temperature	°F	Continuous	Temperature Instrument / ML.73T020.PV
Steam Pressure (supply header)	psig	Continuous	Pressure Instrument / MH.95P707.PV
Steam Temperature	°F	Not Available	Can be inferred from steam pressure
Steam to Hydrocarbon Ratio (volume)	scf/scf	Continuous	Calculation ML.73C019C1.pv (HRVOC) ML.73C019C2.pv (WOBBE)
Steam to Hydrocarbon Ratio (mass)	lb/lb	Continuous	Calculation ML.73C019C4.PV (HRVOC) ML.73C019C5.PV (WOBBE)
Flare Gas Composition (GC)	vol %	Periodic	ML.73A110.PV (Hydrogen) ML.73A111.PV (Oxygen) ML.73A112.PV (Nitrogen) ML.73A113.PV (Methane) ML.73A114.PV (Carbon Monoxide) ML.73A115.PV (Carbon Dioxide) ML.73A116.PV (Ethylene) ML.73A117.PV (Ethane) ML.73A118.PV (Propane) ML.73A119.PV (Propylene) ML.73A120.PV (Butane) ML.73A121.PV (Butene) ML.73A122.PV (Isopentane) ML.73A123.PV (Hexane) ML.73A124.PV (Hexene) ML.73A125.PV (C7+)
Flare Gas Molar Weight	lb/lbmol	Periodic	Calculation – ml.73f012c1.pv (HRVOC) Calorimeter – ml.73f012c.pv (WOBBE)
Flare Gas Net Heating Value	BTU/scf	Periodic / Continuous	Calculation based on composition (ML.73B054.PV) Measured via calorimeter (ML.73A057.PV)
Combustion Zone Net Heating Value	BTU/scf	Continuous	Calculation (ML.73G054.PV)
Flare Gas Lower Flammability Limit	vol %	Periodic	Calculation
Combustion Zone Lower Flammability Limit	vol %	Continuous	Calculation
Flare Exit Velocity	fps	Continuous	Calculation (ML.73F012F.PV)
Wind Speed	mph	Continuous	To be provided
Wind Direction	° (N = 0)	Continuous	To be provided
Ambient Temperature	°F	Continuous	To be provided
Ambient Pressure	psia	Continuous	To be provided
Humidity	%	Continuous	To be provided

Table 1: LDPE Flare Operating Parameters to be Measured/Collected during Testing

HDPE Flare Parameter	Unit	Frequency	Instrumentation/ID
Vent Gas Mass Flow Rate	lb/hr	Continuous	Flow Meter / mh.68f027a (low range)
Vent Gas Mass Flow Rate	lb/hr	Continuous	Flow Meter / mh.68f027g (high range)
Vent Gas Velocity	ft/sec	Continuous	Flow Meter/ mh68f027b
Vent Gas Volumetric Flow Rate	scf/hr	Continuous	Calculation
Total Steam Mass Flow Rate	lb/hr	Continuous	Calculated in Honeywell (sum of 68f002a. 68f002b and 68f031)
Low Range Steam Mass Flow Rate	lb/hr	Continuous	Flow Meter / mh.68f002a (low range)
High Range Steam Mass Flow Rate	lb/hr	Continuous	Flow Meter / mh.68f002b (high range)
Total Steam Volumetric Flow Rate	scf/hr	Continuous	Not available
Center Steam Mass Flow Rate	lb/hr	Fixed value	Flow Meter / mh.68f031
Center Steam Volumetric Flow Rate	scf/hr	Fixed value	Calculation
Total Pilot Gas Mass Flow Rate	lb/hr	Fixed value	Calculation
Total Pilot Gas Volumetric Flow Rate	scf/hr	Fixed value	No meter. Total flow is 150 - 300 scf/hr per design (3 x 50 - 100 scf/hr)
Flare Gas Pressure	psig	Continuous	Pressure Instrument / mh.68p029
Flare Gas Temperature	°F	Continuous	Temperature Instrument / mh.68t032
Steam Pressure	psig	Continuous	Pressure Instrument / mh.68p033
Steam Temperature	°F	Continuous	Temperature Instrument / mh.68t034
Steam to Hydrocarbon Ratio (volume)	scf/scf	Continuous	Calculation
Steam to Hydrocarbon Ratio (mass)	lb/lb	Continuous	Calculation
Flare Gas Composition (GC)	mol %	Periodic	mh.68a010.pv (Hydrogen) mh.68a011.pv (Oxygen) mh.68a012.pv (Nitrogen) mh.68a013.pv (Methane) mh.68a014.pv (Carbon Monoxide) mh.68a015.pv (Carbon Dioxide) mh.68a016.pv (Ethylene) mh.68a017.pv (Ethane) mh.68a018.pv (Propane) mh.68a019.pv (Propylene) mh.68a020.pv (Butane) mh.68a021.pv (Butene) mh.68a022.pv (C5s) mh.68a023.pv (n-Hexane) mh.68a024.pv (Hexene) mh.68a025.pv (C7+)
Flare Gas Molar Weight	lb/lbmol	Periodic	Calculation based on composition (mh.68f027c.pv)
Flare Gas Net Heating Value	BTU/scf	Periodic	Calculation based on composition (mh.68c054.pv)
Combustion Zone Net Heating Value	BTU/scf	Continuous	Calculation (mh.68g054.pv)
Flare Gas Lower Flammability Limit	vol %	Periodic	Calculation
Combustion Zone Lower Flammability Limit	vol %	Continuous	Calculation
Flare Exit Velocity	fps	Continuous	Calculation (mh.68f027b.pv)
Wind Speed	mph	Continuous	To be provided
Wind Direction	° (N = 0)	Continuous	To be provided
Ambient Temperature	°F	Continuous	To be provided
Ambient Pressure	psia	Continuous	To be provided
Humidity	%	Continuous	To be provided

Table 2: HDPE Flare Operating Parameters to be Measured/Collected during Testing

In addition to the parameters listed above, video recordings of the flares' flame will be collected by the PFTIR contractor. During the tests, video records will provide information related to the performance of the control system. Multiple video cameras will be used to record the appearances of the flare flame. Video cameras will be co-located with the FLIR cameras described as well as with the PFTIR. In this way, the video from the cameras will provide the same perspectives as the infrared optical devices, which will be useful in determining the control system performance as well as for any required trouble shooting. The camera located with the PFTIR will capture the view of the flare from the PFTIR perspective. All camera data will be captured and archived. The PFTIR contractor will record the sky conditions (sunny/cloudy) and precipitation events (i.e., rain, snow, fog, etc.) for each Test Series by hand log.

EMCC also shall record the location of the PFTIR measurement spectroscopic field of view within the flare plume, if feasible with the equipment being used. During each run, EMCC shall review the video from all cameras to assess whether or not the run is valid.

When conducting each PFTIR measurement, the temperature of the flare plume must also be determined.

EMCC shall synchronize time clocks in DCS, testing equipment, testers watches used to record notes of time, the FLIR Cameras, and video camera to the second. EMCC shall document such synchronization.

Data Reduction

Data will be compiled at approximately one minute intervals. Each one minute point will consist of approximately 40 individual measurements averaged into a single spectrum.

The data analysis procedure shall have four major components:

1. Converting the raw interferogram to a single-beam spectrum using a Fourier Transform process.

2. Isolating the flare transmissivity from other interferences.

3. Converting the isolated flare transmissivity spectrum to an absorbance spectrum so it can be further analyzed with standard spectroscopic techniques.

4. Determining the concentrations of individual components of the flare plume from the absorbance spectrum.

Interferences

For final analysis of the PFTIR spectra, a list of possible interferences will be included with the method and raw PFTIR data files if any are present. These include components that are likely to appear in the spectra but have no impact on the combustion efficiency calculation.

Data Filtering

The raw FTIR data (one minute averages) will be reported from the analytical software with a 2-sigma (2σ) error calculated from the fit of the reference spectra to the sample spectra. Any individual component measurement that was less than 2 times this error (i.e., 4σ) will not be used in calculating combustion efficiency.

Calibration

Calibrations for each PFTIR will be performed at least at the beginning of each day of testing. After calibration is completed, the equipment will be ready to begin testing. Before and after each test run, a sky background will be obtained. Additional sky backgrounds will be taken as sky conditions change during testing.

The PFTIR signal must be calibrated in absolute units of radiance. This requires that the instrument be calibrated utilizing an IR source of known spectral radiance. This calibration is accomplished with a commercial black body calibrator.

Several calibrations will be performed throughout the test program to account for the effects of sky background and atmospheric radiance and transmittance. Three radiant sources with various characteristics will be placed at the focal point of the collimator at roughly the same distance from the PFTIR as the flare. Precise alignment of the PFTIR with the collimator is critical during these calibrations. The sky background calibrations will be performed as needed during testing.

Black Body Calibration

To calibrate the PFTIR signal in absolute units of radiance, a black body with an IR source of known spectral radiance will be used. A commercial black body calibrator will be placed in the collimator at the base of the flare, which will produce a known IR spectrum as predicted by the Planck function. The calibration of this black body standard is traceable to the National Institute for Standards and Technology (NIST). This calibration will be done at least once each day.

IR Source Calibration

To determine the atmospheric transmission loss between the flare plume and the PFTIR, an infrared (IR) source will be placed in the collimator at the base of the flare. It will create a strong IR signal that the PFTIR can use to detect to determine atmospheric transmission. This calibration will be done at least once each day.

Cold Source Calibration

To determine the atmospheric radiance generated by the air between the flare plume and the PFTIR and from the PFTIR instrument itself, a cold source of liquid nitrogen in a windowed cup will be placed in the collimator at the base of the flare. It zeroes any radiance except for that created by the atmosphere and the PFTIR. This calibration will be done at least once each day.

Sky Background Calibration

Background radiance calibrations will be conducted as needed during the test program. When the background changes behind the flare plume, such as when clouds are passing, backgrounds will be taken more often. It is not uncommon to take a background every 10 minutes during a run. During the background calibration, the PFTIR will swing off the flare plume and collect a reading for approximately three minutes, then swing back to the flare plume and continue collecting data.

Also, as referenced above, a LTS test will also be completed once each day, and, if possible, a relative accuracy check against a source with a CO2/CO CEMS will be conducted prior to the start of testing.

Additional Requirements

EMCC shall provide all data required to be recorded during the test on a minute-by-minute basis (where available) as well as an average for each run. Such results shall include but not be limited to: CE, concentration (measured as ppm-meter) of the measured compounds, and the parameters required to be measured or calculated pursuant to Tables 1 and 2 (except for the data collected by the FLIR and the digital visible spectrum video camera).

Because this test program is being conducted on working plastic plant flares, it is understood that it might not always be possible to maintain stable conditions throughout the duration of a test condition. The flow rates and vent gas composition may change throughout the duration of each test condition run. In order to generate reliable data, EMCC shall identify conditions under which the variability of vent gas flow or composition occurring during a test run is large enough to warrant concern over data quality. Therefore, at the end of each test run, EMCC shall calculate whether the variability in vent gas flow rate or composition during the test run would have resulted in a CZNHV that would be more than 25% different than the CZNHV at which the test was conducted. If this is found to be the case, the test condition run shall be repeated once a stable flow rate and composition can be maintained.

EMCC shall submit a Test Report consistent with the requirements set forth in Enclosure I in a timely fashion after completion of the field testing. EMCC shall describe all assumptions, calculations, and measured data for each calculated value. EMCC shall provide all data recorded during the test on shortest averaging period of Passive FTIR measurements in electronic format. EMCC shall include in the Test Report at least the following for each run: CE, concentration (measured as ppm-meter) of the measured compounds, and the parameters required to be measured or calculated pursuant to Tables 1 and 2 (except for the data collected by the FLIR).

Enclosure III
EPA Section 114 Request to ExxonMobil Chemical Company

Confidential Business Information

You may assert a business confidentiality claim covering all or part of the information you provide in response to this information request for any business information entitled to confidential treatment under Section 114(c) of the Clean Air Act (the Act), 42 U.S.C. § 7414, and 40 C.F.R. Part 2, subpart B. Under Section 114(c) of the Act, you are entitled to confidential treatment of information that would divulge methods or processes entitled to protection as trade secrets. Under 40 C.F.R. Part 2, subpart B, business confidentiality means "the concept of trade secrecy and other related legal concepts which give (or may give) a business the right to preserve the confidentiality of business information and to limit its use or disclosure by others in order that the business may obtain or retain business advantages it derives from its rights in the information." See 40 C.F.R. § 2.201(e).

The criteria EPA will use in determining whether material you claim as business confidential is entitled to confidential treatment are set forth at 40 C.F.R. §§ 2.208 and 2.301. These regulations provide, among other things, that you must satisfactorily show that: (1) the information is within the scope of business confidentiality as defined at 40 C.F.R. § 2.201(e), (2) that you have taken reasonable measures to protect the confidentiality of the information and that you intend to continue to do so, (3) the information is not and has not been reasonably obtainable by legitimate means without your consent, and (4) the disclosure of the information is likely to cause substantial harm to your business's competitive edge. See 40 C.F.R. § 2.208 (a)-(d). Emission data, as defined at 40 C.F.R. § 2.301(a)(2), is expressly not entitled to confidential treatment under 40 C.F.R. Part 2, subpart B. See 42 U.S.C. § 7414(c); 40 C.F.R. § 2.301(e).

Information covered by a claim of business confidentiality will be disclosed by EPA only to the extent, and by means of the procedures, set forth in Section 114(c) of the Act and 40 C.F.R. Part 2, subpart B. EPA will construe your failure to furnish a business confidentiality claim with your response to this information request as a waiver of that claim, and the information may be made available to the public without further notice to you.

To assert a business confidentiality claim, you must place on (or attach to) all information you desire to assert as business confidential either a cover sheet, stamped or typed legend, or other suitable form of notice employing language such as "trade secret," "proprietary," or "company confidential" at the time you submit your response to this information request. Allegedly confidential portions of otherwise non-confidential documents should be clearly identified, and may be submitted separately to facilitate identification and handling by EPA. You should indicate if you desire confidential treatment only until a certain date or until the occurrence of a certain event.

In addition, EPA is providing you notice that if you assert a claim of business confidentiality for information you provide in response to this information request, EPA will determine whether such information is entitled to confidential treatment, pursuant to 40 C.F.R. Part 2, subpart B. Accordingly, after EPA's receipt of your business confidentiality claim, you will receive a letter inviting your comments on the following questions:

1. What specific portions of the information are alleged to be entitled to confidential treatment? Specify by page, paragraph, and sentence when identifying the information subject to your claim.

2. For what period of time do you request that the information be maintained as confidential, e.g., until a certain date, until the occurrence of a specified event, or permanently? If the occurrence of a specific event will eliminate the need for confidentiality, specify that event. Additionally, explain why the information should be protected for the time period you've specified.

3. What measures have you taken to protect the information claimed as confidential from undesired disclosure? Have you disclosed the information to anyone other than a governmental body or someone who is bound by an agreement not to disclose the information further? If so, why should the information still be considered confidential?

4. Is the information contained in any publicly available material such as the Internet, publicly available databases, promotional publications, annual reports, or articles? Is there any means by which a member of the public could obtain access to the information? Is the information of a kind that you would customarily not release to the public?

5. Has any governmental body made a determination as to the confidentiality of the information? If so, please attach a copy of the determination.

6. For each category of information claimed as confidential, explain with specificity whether disclosure of the information is likely to result in substantial harm to your competitive position. Explain the specific nature of those harmful effects, why they should be viewed as substantial, and the causal relationship between disclosure and such harmful effects. How could your competitors make use of this information to your detriment?

7. Is there any other explanation you deem relevant to EPA's determination of your business confidentiality claim that is not covered in the preceding questions? If so, you may provide such additional explanation.

See, 40 C.F.R. § 2.204(e)(4). When you receive such a letter, you must provide EPA with a written response within the number of days set forth in the letter. EPA will construe your failure to furnish timely comments as a waiver of your confidentiality claim, consistent with 40 C.F.R. § 2.204(e)(1).